

### **Abstract**

A system for bi-directional communication within a power distribution system.

The system is configured to find an endpoint, the endpoint having an endpoint transceiver in electrical communication with a power distribution line. The power distribution line is

5 within the power distribution system, and the endpoint is identified by a unique I.D. The

system comprises a substation transceiver electrically coupled to a power distribution line within the power distribution system. A substation circuit is in electrical communication

with the substation transceiver. The substation circuit is programmed to map the unique

I.D. for the endpoint to a base frequency within a bandwidth and to control the endpoint to

10 transmit a find endpoint data packet onto the power distribution network. The find

endpoint data packet includes the unique I.D. and the base frequency. The substation

circuit is further programmed to assign a status to the base frequency upon receiving a

signal from the endpoint, the status indicating that the substation transceiver is receiving

signals in the frequency bandwidth.

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